Oral and Maxillofacial Surgery Department

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learning outcomes

- Describe when it is appropriate and when it is inappropriate to remove teeth.
- Patient and tooth assessment.
- Select the appropriate instruments for removing teeth.
- Describe and demonstrate the importance of patient positioning and self-positioning during tooth extraction.
- Be able to describe the movements required to remove the majority of teeth under usual circumstances.
- List and understand the reasons for postoperative instructions after tooth extraction.

Definition

Exodontia

It is that part of oral surgical practice dealing with the extraction of teeth and is a surgical procedure involving soft and hard tissues of the oral cavity.

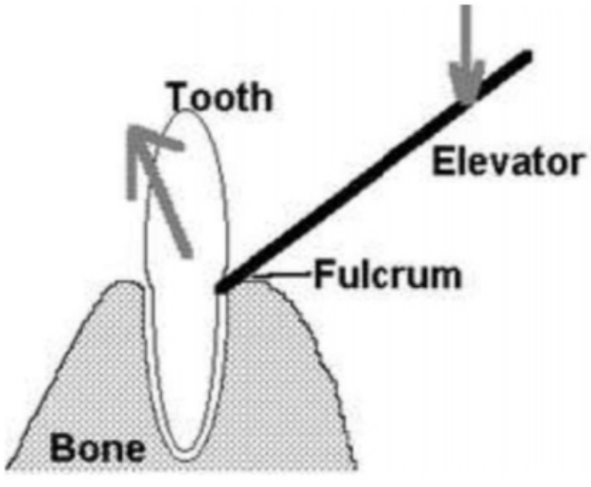
Painless removal of tooth/root with min. trauma to investing structure
Proper tooth removal does not require a large amount of strength; instead, when done properly, it is accomplished with finesse. Removal of an erupted tooth involves the use of controlled force so that the tooth is not pulled from bone, but instead is gently lifted from its socket

Techniques of Extraction

1- Simple or INTRA-ALVEOLAR or FORCEPS or Closed or Routine

2- TRANS-ALVEOLAR or Complex or Surgical

During preextraction planning, the degree of difficulty anticipated for removing a particular tooth is assessed. If that assessment leads the surgeon to believe that the degree of difficulty will be high or if initial attempts at tooth removal confirm this, a deliberate surgical approach—not an application of excessive force—should be taken. Excessive force may injure local soft tissue and damage the surrounding bone and teeth. Such force may fracture the crown, usually making the extraction substantially more difficult than it would have been otherwise. Moreover, excessive force and haste during an extraction heightens intraoperative and postoperative patient discomfort and anxiety.



Extraction of teeth is a procedure that incorporates the principles of surgery, as well as many principles from physics and mechanics.

Extraction of a tooth combines the principles of surgery and elementary physical mechanics. When these principles are applied correctly, a tooth can usually be removed from the alveolar process, even by someone without great strength and without untoward force or sequelae.

Indications for Tooth Removal

- Teeth that are hopelessly carious
- Teeth with nonvital pulp or pulpitis when root canal ttt. is not indicated or failed.
- Severe periodontal disease when excessive bone support is destroyed

Indications for Tooth Removal

- Orthodontic reasons
- Malposed teeth not amenable to orthodontic treatment.
- Cracked teeth
- Teeth that are traumatizing soft tissue if other treatment will not prevent this trauma

Indications for Tooth Removal

- Preprosthetic extractions: if teeth mechanically interfering with the placement of restorative appliance.
- Impacted teeth
- Retained primary teeth when a permanent tooth is present and in normal position to erupt
- Teeth involved in jaw fractures

Teeth involved in jaw fractures
In some situations, the tooth involved in the line of fracture can be maintained, but if the tooth is injured, infected, or severely luxated from the surrounding bony tissue or interferes with proper reduction and fixation of the fracture, its removal is usually indicated.

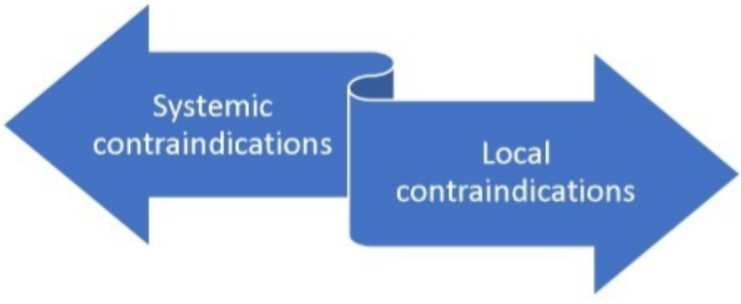
Indications for Tooth Removal

- Supernumerary teeth
- Remaining roots
- Teeth associated with pathologic lesions
- Pre-radiation therapy
- Economics: inability of PT to pay or to take time from work may require the tooth to be extracted

Radiation Therapy
Patients who are to receive radiation therapy for oral, head, or neck cancer should consider removal of teeth that are in the beam of radiation therapy, particularly if the teeth are compromised in some manner.

Contraindications for Tooth Removal

- Relative in their strength.
- In some situation the contraindication can be modified using additional care or treatment and the indicated extraction can be performed.
- Contraindications are divided into two groups:



Systemic contraindications

1. Severe uncontrolled metabolic diseases: uncontrolled diabetes and end- stage renal disease.

2. Patients who have uncontrolled leukemia and lymphoma.

3. Patients with any of severe uncontrolled cardiac diseases: severe myocardial ischemia, such as unstable angina pectoris, recent myocardial infarction, uncontrolled hypertension.

Systemic contraindications

4.Patients who have severe bleeding disorders: hemophilia or severe platelet disorders, or patients taking anticoagulant therapy.

5.Patients who take certain drugs: corticosteroids, immunosuppressive, bisphosphonate and chemotherapeutic agents.

6.Pregnancy

Local contraindications

1. A history of therapeutic radiation for cancer.

2. Teeth that are located within the area of malignant tumor.

3. Patients who have severe acute pericoronitis around an impacted mandibular third molar should not have the tooth extracted until the pericoronitis has been treated.

4. Central hemangioma

Pre-surgical Assessment

When conducting the preoperative patient evaluation, it is critical that the surgeon examine the patient's medical status. Patients can have a variety of health problems that require treatment modification or medical management before the surgery can be safely performed.

Examination for 2 reasons:

1. Determine difficulty and choose technique.
2. Inform the patient with the possibility of fracture in order not to be put in awkward defensive position in front of him particularly if he had previous extraction with out problems.

Clinical Evaluation of teeth for removal

- In the preoperative assessment period the tooth to be extracted should be examined carefully to assess the difficulty of the extraction.

- 1. Access to the tooth.
- 2. Mobility of the tooth.
  - a. Greater than normal mobility
  - b. Less than normal mobility
- 3. Condition of the crown
  - a. Large caries
  - b. Restoration
  - c. Endo
  - d. Crown
  - e. calculus
  - f. Adjacent teeth

Any limitation of opening may compromise the ability of the surgeon to give local anesthesia or perform a routine extraction. If the patient's opening is substantially compromised, the surgeon should consider a surgical approach to the tooth instead of a routine elevator and forceps extraction. This requires placing the patient under deep sedation or general anesthesia.

Radiographic examination of teeth for removal

Rule

Do not remove teeth without a radiograph or at least a very good reason why not to have one.

- The radiograph for exodontia must show
  - The entire crown of the tooth
  - The adjacent tooth, mesial and distal (if appropriate)
  - The entire root structure
  - Relationship to adjacent vital structures

In general, periapical radiographs provide the most accurate and detailed information concerning the tooth, its roots, and the surrounding tissue. Panoramic radiographs are used frequently, but their greatest usefulness is for impacted teeth as opposed to erupted teeth.

Radiographic examination of teeth for removal

Interpretation of the preoperative radiograph requires:

- Knowledge of normal radiographic anatomy
- Assessment of the condition of the surrounding bone
- Assessment of the adjacent vital structures
- Assessment of the condition of the adjacent teeth
- Assessment of the tooth in question

1. Assessment of the condition of the surrounding bone

- Alveolar bone loss
- Bone density
  - Older age brittle denser bone difficult extraction and liable to fracture as not bending due to less cancellous bone
  - Abnormal hardening or thickening of bone leads to difficult extractions and also reduced resistance to infection and possibility for osteomyelitis.
- Associated apical pathology

2. Assessment of the relationship to adjacent vital structures

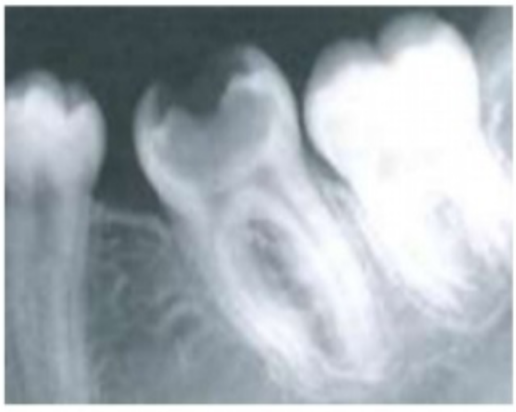
- Maxillary sinus
- Nasal floor
- Mandibular canal
- Mental foramen

3. Assessment of the condition of the adjacent teeth

- Caries
- Restorations
- Endodontics
- Periodontal disease
- Root proximity
- No adjacent teeth
- Relationship to unerupted teeth

a. Extent of caries, fracture, or restorations

- Dental caries, tooth fracture or large alloy restorations can weaken the crowns of teeth to the extent they will crumble under the pressure of forceps
- The need for alteration in forceps selection or surgical approach can be shown following analysis of this factor

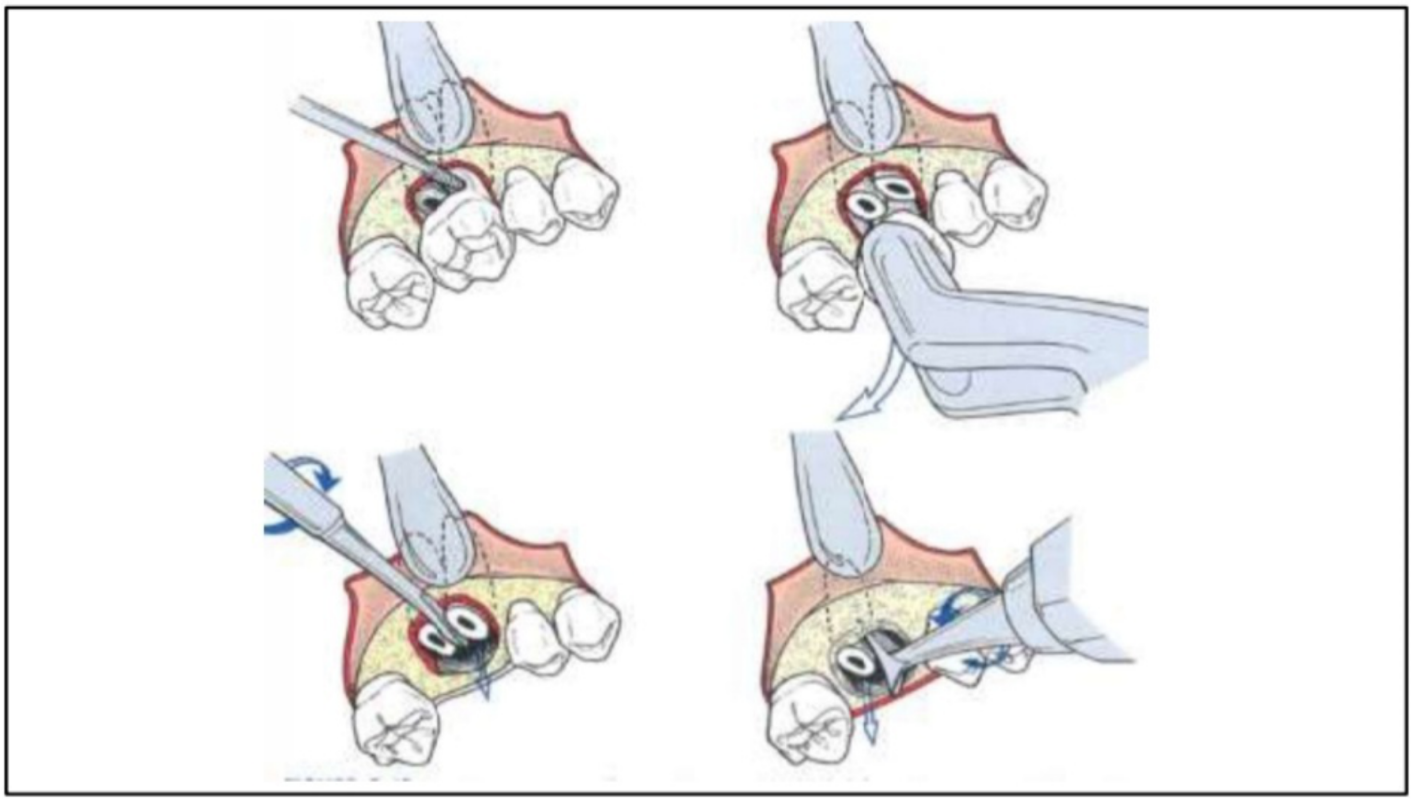
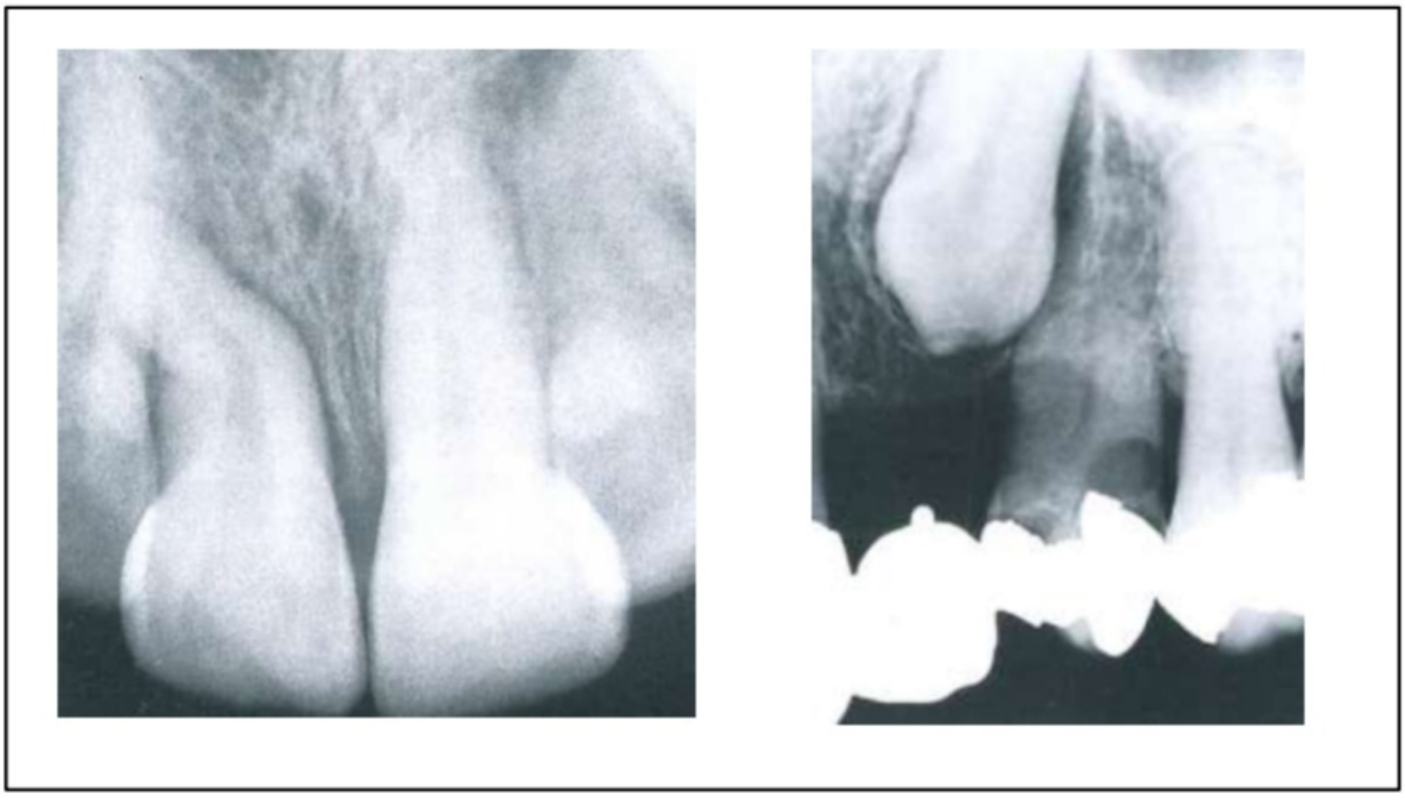


4. Assessment of the tooth in question

a) Extent of caries (extending to roots),fracture, or restorations
b) Root number
c) Root size
d) Combined root width
e) Individual root shape, root divergence and curvature
f) Individual root width and length
g) Root fracture or resorption
h) Endodontic treatment

b. Root number:

- The higher the number of roots, the more difficult will be the extraction and the higher the probability for root tip fracture.

c. Combined Root Width

- Examine the overall width of the widest part of the root as compared with the width of the root at its narrowest point in the cervical 1/3 of the root
- Teeth with widely divergent roots will be more difficult to remove and risks for alveolar fracture greater
- Divergent rooted teeth may require sectioning and bone removal